



Volunteer Lake Assessment Program Individual Lake Reports

ROCK POND, WINDHAM, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	425	Max. Depth (m):	8.2	Flushing Rate (yr ⁻¹)	2.5
Surface Area (Ac.):	35	Mean Depth (m):	3	P Retention Coef:	0.59
Shore Length (m):	1,800	Volume (m ³):	418,500	Elevation (ft):	153

TROPHIC CLASSIFICATION

Year	Trophic class
1978	OLIGOTROPHIC
1987	MESOTROPHIC

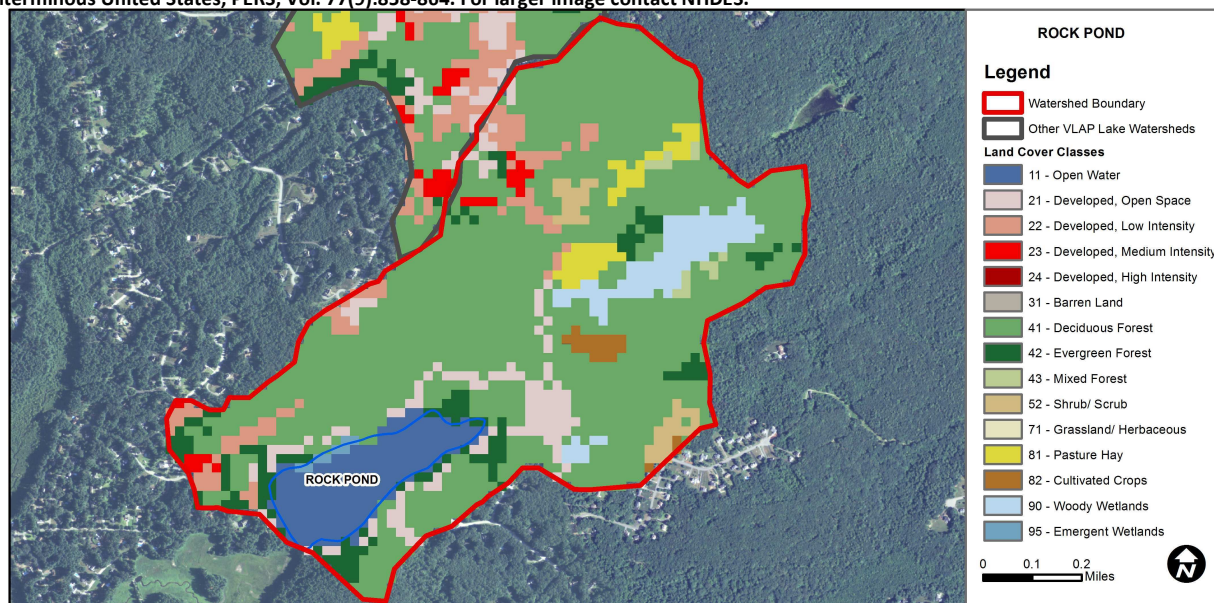
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Cyanobacteria hepatoto	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	7.71	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	5.93	Deciduous Forest	64.23	Pasture Hay	2.3
Developed-Low Intensity	4.55	Evergreen Forest	5.98	Cultivated Crops	0.96
Developed-Medium Intensity	0.96	Mixed Forest	0.67	Woody Wetlands	4.69
Developed-High Intensity	0	Shrub-Scrub	1.77	Emergent Wetlands	0.38



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

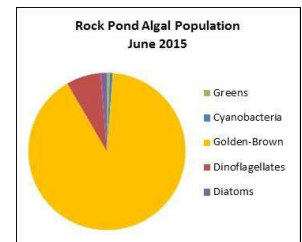
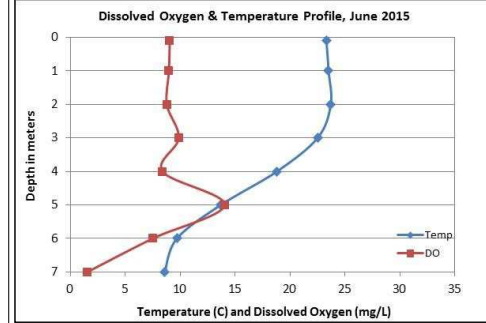
ROCK POND, WINDHAM

2015 DATA SUMMARY

RECOMMENDED ACTIONS: Increase monitoring frequency to once per month during the summer to better assess seasonal variations in water quality and historical water quality trends. Inlet and Outlet phosphorus levels were elevated in June during a rain event. This indicates stormwater runoff and flushing of wetland systems may cause temporary pulses of phosphorus to enter the pond. Educate watershed residents on ways to reduce stormwater runoff from their properties utilizing DES "N.H. Homeowner's Guide to Stormwater Management". The elevated epilimnetic phosphorus in September may have occurred due to fall turnover mixing phosphorus rich hypolimnetic waters with epilimnetic waters, however there is not enough data to make a determination as to the cause. Keep up the great work.

OBSERVATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were slightly elevated and greater than the state median in June. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Deep spot, Inlet and Outlet conductivity were slightly elevated and greater than the state median. Historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) conductivity since monitoring began.
- ◆ **E. COLI:** E. coli levels were very low at all stations and much less than the state standards for public beaches (88 cts/100 mL) and surface waters (406 cts/100 mL).
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus was low in June and then increased to elevated levels in September. Hypolimnetic (lower water layer) phosphorus was slightly elevated in June and decreased to low levels in September. Pond turnover may have occurred prior to the September sampling causing the elevated epilimnetic phosphorus levels. Average epilimnetic phosphorus increased sharply from 2014 and was the highest measured since monitoring began. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. Inlet and Outlet phosphorus levels were elevated and above average for those stations in June and sampling occurred during a rain event.
- ◆ **TRANSPARENCY:** Transparency was within a good range and was higher than (better than) the state median. Historical trend analysis indicates significantly increasing (improving) transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic and hypolimnetic turbidities were within low to average ranges in June. Inlet and Outlet turbidities were slightly elevated for those stations.
- ◆ **pH:** Deep spot, Inlet and Outlet pH levels were within the desirable range 6.5-8.0 units and sufficient to support aquatic life. Historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH since monitoring began, however epilimnetic pH appears to be recovering since 2009.



Station Name	Table 1. 2015 Average Water Quality Data for ROCK POND								
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	15.7	4.61	130.0		19	4.50	4.63	0.66	6.96
Hypolimnion			127.0		11			1.09	7.07
Burgess				10					
Carpenter				10					
Inlet			129.0		31			2.01	6.52
Outlet			129.0		36			1.56	7.15
Reed				10					
Swett				20					

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: > 230 mg/L (chronic)

E. coli: > 88 cts/100 mL – public beach

E. coli: > 406 cts/100 mL – surface waters

Turbidity: > 10 NTU above natural level

pH: between 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L

Chlorophyll-a: 4.58 mg/m³

Conductivity: 40.0 uS/cm

Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

Transparency: 3.2 m

pH: 6.6

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Worsening	Data significantly increasing.	Chlorophyll-a	Stable	Trend not significant; data show low variability.
pH (epilimnion)	Worsening	Data significantly decreasing.	Transparency	Improving	Data significantly increasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

